FIG.1

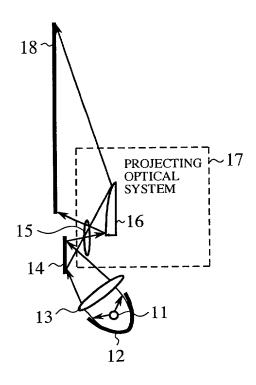
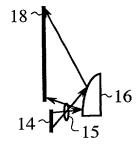
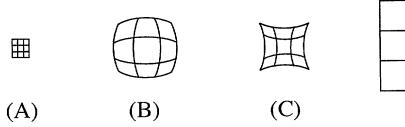


FIG.2





(D)

FIG.3

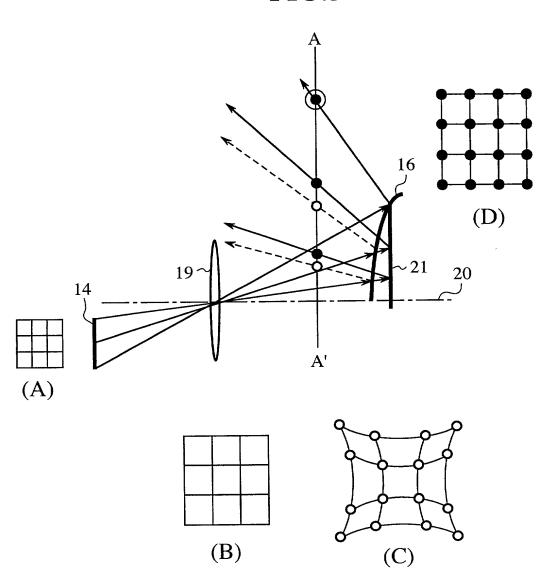


FIG.4

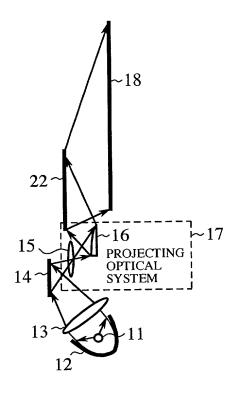


FIG.5

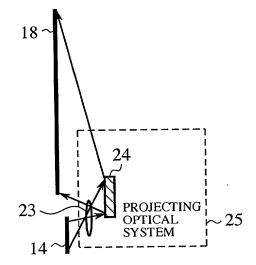
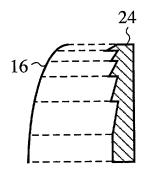


FIG.6



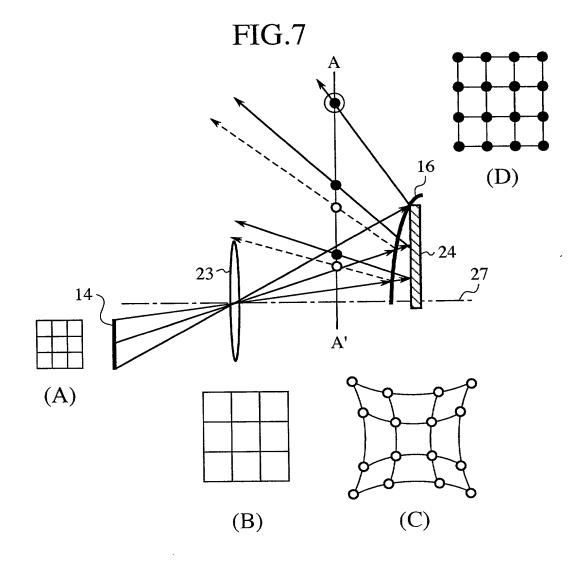


FIG.8

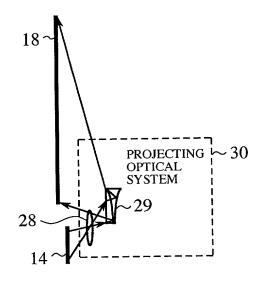


FIG.9

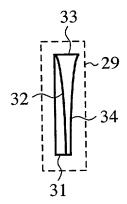


FIG.10

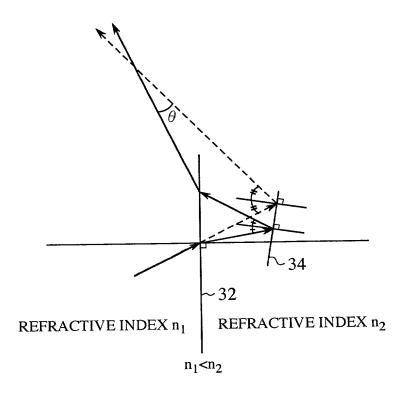


FIG.11

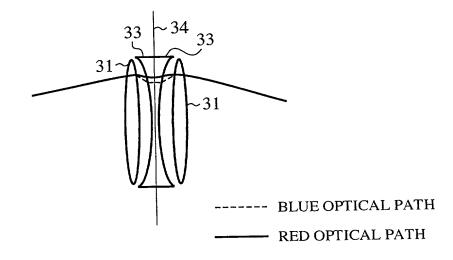


FIG.12

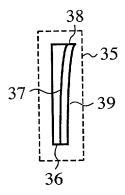


FIG.13A

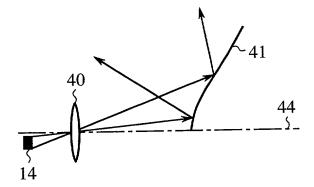


FIG.13B

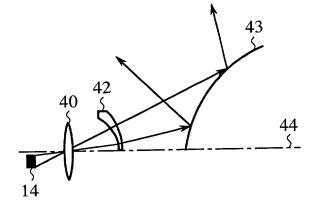


FIG.13C

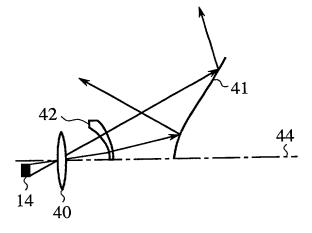


FIG.14

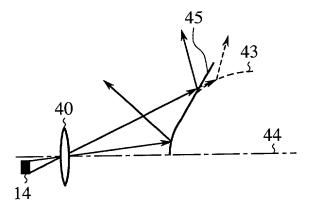


FIG.15

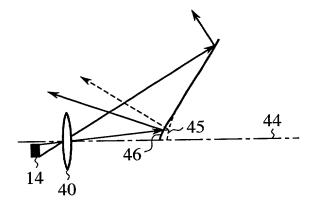


FIG.16

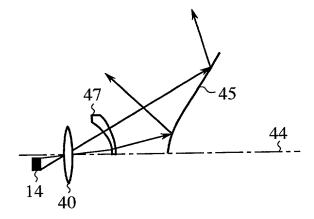


FIG.17

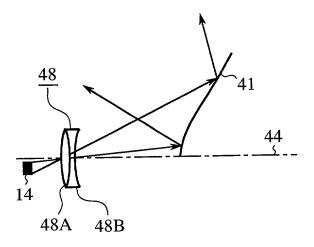


FIG.18

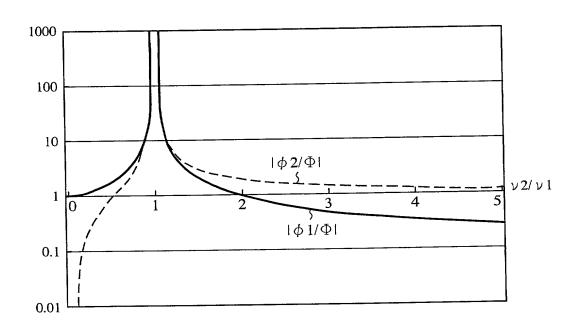


FIG.19A

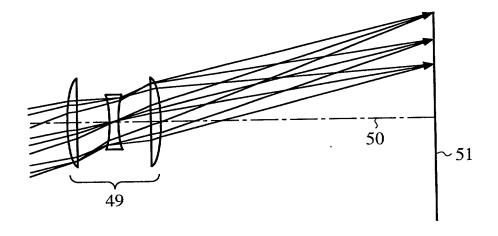
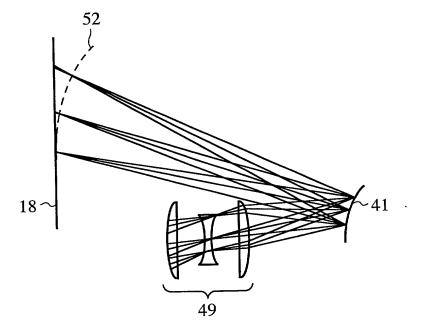


FIG.19B



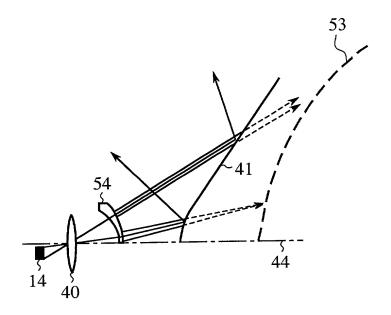
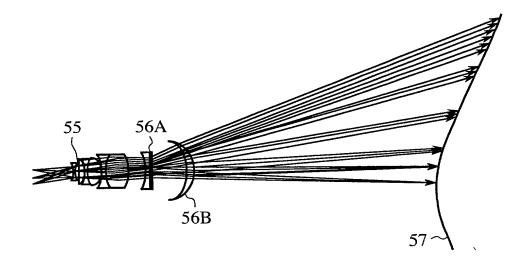


FIG.21



CONFIGURATION DATA

| | SURFACE NO. | RADIUS OF CURVATURE (mm) | THICKNESS (mm) | REFRACTIVE INDEX nd | ABBE'S NUMBER v d |
|------|----------------|-----------------------------|----------------|------------------------|----------------------|
| | 1 | ∞ | 30 | | |
| stop | 2 | ∞ | 0 | | |
| | 3 | -14.66425866 | 1 | 1.673 | 32.2 |
| | 4 | 19.57365899 | 3.4 | 1.800 | 42.3 |
| a1 | 5 | -71.52517928 | 0.2 | | |
| | 6 | 46.57431333 | 5.7 | 1.734 | 51.1 |
| | 7 | -18.29405936 | 0.2 | | |
| | 8 | -40.70466802 | 2.8 | 1.689 | 31.2 |
| | 9 | 29.58192706 | 0.601907206 | | |
| | 10 | 40.63225731 | 10.4 | 1.734 | 51.1 |
| | 11 | -18.55101371 | 0.2 | | |
| | 12 | -21.25419861 | 1.2 | 1.620 | 36.3 |
| | 13 | 36.18745731 | 18 | 1.805 | 25.5 |
| | 14 | -52.79556347 | 18.44366577 | | |
| | 15 | -22.2362126 | 2.6 | 1.699 | 30.1 |
| | 16 | -373.1950411 | 0.2 | | |
| | 17 | -377.4162065 | 1.5 | 1.583 | 30.2 |
| a2 | 18 | -377.4162065 | 28 | | |
| | 19 | -36.51210431 | 4.3 | 1.493 | 58.3 |
| a3 | 20 | -27.84174798 | 200 | | |
| a4 | 21 | 99.76542177 | -185 | mirror | |
| | 22 | ∞ | 235 | mirror | |
| | 23 | ∞ | 0_ | | |

| 5(a1) | 18(a2) | |
|---------------|-------------------------------|--|
| -27.07818351 | 411.8441246 | |
| 5.8307554E-05 | 7.9259800E-06 | |
| 2.2448345E-07 | 1.3052778E-08 | |
| | -27.07818351 5.8307554E-05 | |

| SURFACE NO. | 20(a3) | 21(a4) |
|-------------|----------------|----------------|
| k | -0.185161669 | -4.423779483 |
| AR1 | 0 | 0.001258226 |
| AR2 | 0.003607536 | -0.000570833 |
| AR3 | -2.0171885E-05 | 1.9194137E-07 |
| AR4 | 2.9870872E-06 | -3.4523509E-09 |
| AR5 | 1.2983498E-07 | 5.7545484E-11 |
| AR6 | -6.5096954E-09 | 2.1100900E-14 |
| AR7 | 6.2670569E-11 | -2.1391081E-15 |
| AR8 | 1.9677727E-12 | 5.9659829E-18 |

FIG.23B

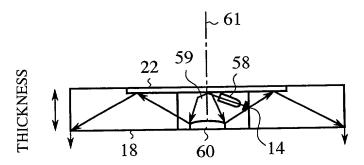


FIG.23C

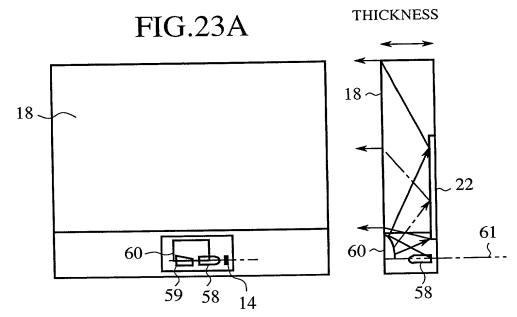


FIG.24B

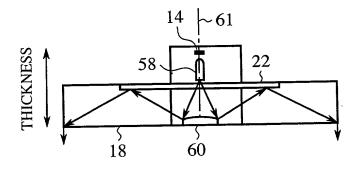


FIG.24A

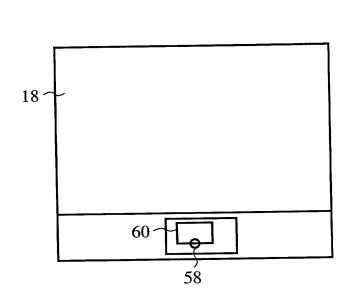


FIG.24C

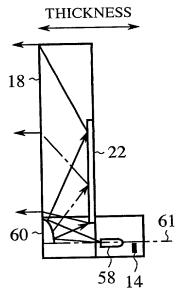
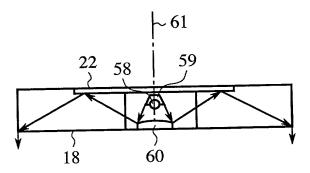


FIG.25B



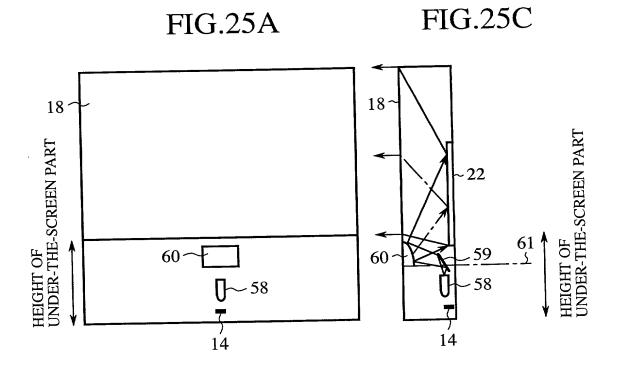
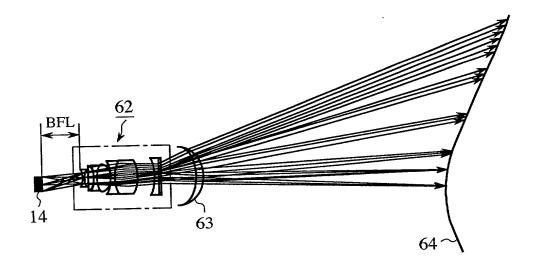
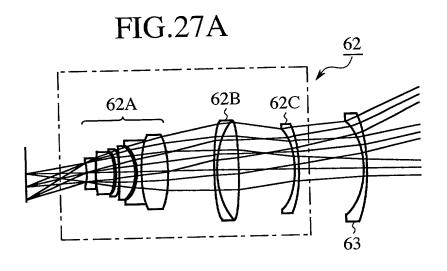
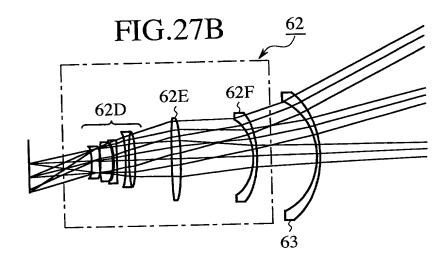
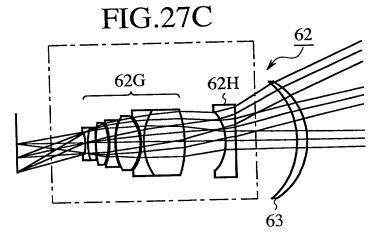


FIG.26







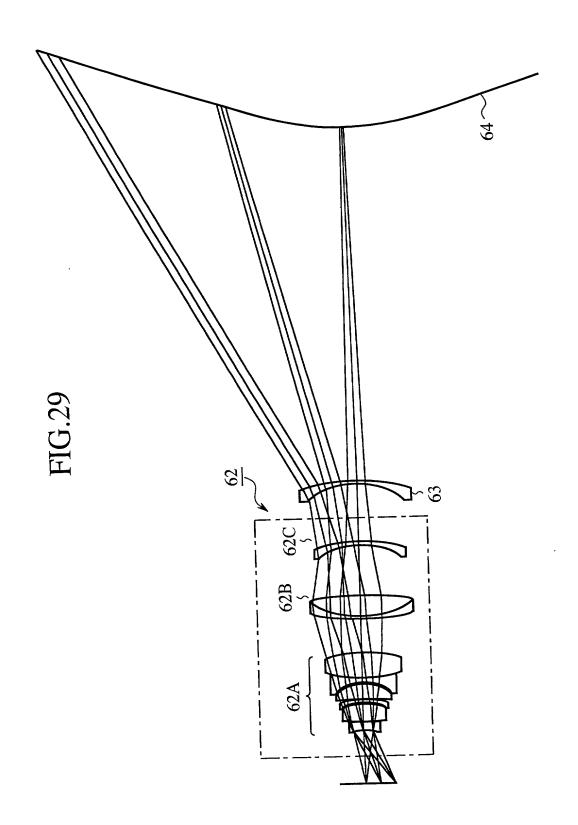


CONFIGURATION DATA

| | SURFACE NO. | RADIUS OF CURVATURE (mm) | THICKNESS (mm) | REFRACTIVE INDEX nd | ABBE'S NUMBER vd |
|------|-----------------|-----------------------------|----------------|---------------------|---------------------|
| | 1 | 00 | 30 | | |
| -40- | 2 | -20.6576453533 | 4.7 | 1.468 | 33.8 |
| stop | 3 | -80.5590059694 | 0.2 | | |
| | 4 | 105.1808714030 | 9 | 1.795 | 45.4 |
| | 5 | -22.7193673760 | 0.856893940799 | | |
| | 6 | -17.3195136863 | 1.5 | 1.699 | 30.1 |
| | 7 | -36.5709492186 | 0.1 | | |
| | 8 | -30.5705 152.00 | 0 | | |
| | 9 | -117.4048328480 | 8.4 | 1.734 | 51.1 |
| | 10 | -18.4433151695 | 0.610560115593 | | |
| | 11 | -18.0444912892 | 2 | 1.717 | 29.5 |
| | $\frac{11}{12}$ | 58.2778027126 | 0.1 | | |
| | 13 | 60.6427596822 | 13.5 | 1.755 | 52.3 |
| | 14 | -48.8581369974 | 22.9151946067 | | |
| | 15 | 134.5886723560 | 1.5 | 1.670 | 39.3 |
| | 16 | 50.1278660368 | 0.2 | | |
| | 17 | 50.1825926071 | 10.4 | 1.805 | 25.5 |
| | 18 | -127.7639461820 | 28.4346465294 | | |
| | 19 | -37.7652148481 | 2 | | 25.5 |
| | 20 | -67.5410544326 | 32.6137406027 | | 25.5 |
| | 21 | -38.6933083141 | 1.5 | | 25.5 |
| al | 22 | -72.6271254361 | | | |
| a2 | 23 | 97.9695439905 | -185 | | mirror |
| | 24 | 00 | | | mirror |
| | 25 | 00 | (| <u> </u> | |

| SURFACE NO. | 22(a1) |
|-------------|--------------------|
| k | 0 |
| A | 2.14260670628E-06 |
| B | -4.79111799587E-10 |
| C | -7.8046619422E-14 |

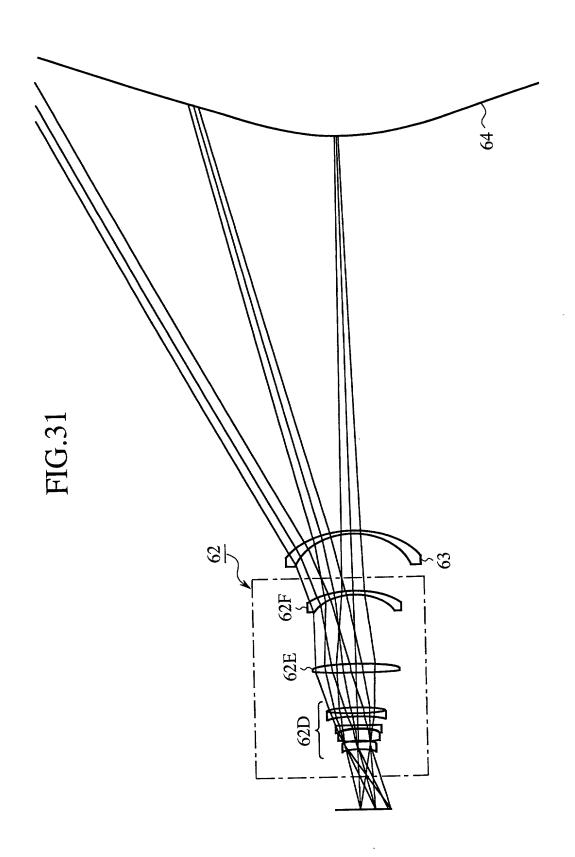
| 23(a2) |
|--------------------|
| -5.24681962734 |
| 0.00196450411864 |
| -0.000239993326253 |
| 3.63342308137E-07 |
| -9.24814356675E-09 |
| 7.39934860564E-12 |
| 2.02289771668E-13 |
| -3.98993312603E-16 |
| -6.84585972298E-19 |
| |



CONFIGURATION DATA

| | SURFACE NO. | RADIUS OF CURVATURE (mm) | THICKNESS (mm) | REFRACTIVE INDEX nd | ABBE'S NUMBER vd |
|------|----------------|-----------------------------|----------------|------------------------|---------------------|
| | 1 | ∞ | 30 | | |
| stop | 2 | ∞_ | 0 | | |
| | 3 | -12.2904711278 | 4.4 | 1.805 | 25.5 |
| | 4 | -16.4195184751 | 0.2 | | |
| | 5 | 104.5354229330 | 5.7 | 1.788 | 47.5 |
| | 6 | -19.6319108577 | 1.17708106134 | | |
| | 7 | -17.3104022925 | 1 | 1.805 | 25.5 |
| | 8 | -99.5878191538 | 3.78999966183 | | |
| | 9 | -64.4356830029 | 1.8 | 1.689 | 31.2 |
| | 10 | 405.8043036740 | 0.1 | | 10.6 |
| | 11 | 205.5484851810 | 3.8 | 1.773 | 49.6 |
| | 12 | -37.9436126442 | 16.3275458444 | | |
| | 13 | 351.0732445020 | 5.2 | 1.805 | 39.6 |
| | 14 | -66.7950420770 | 34.6140975436 | | |
| | 15 | -25.3154161226 | 1.3 | 1.581 | 40.9 |
| | 16 | -49.5460449762 | 28 | | |
| | 17 | -30.6367731626 | 1.3 | 1.487 | 70.4 |
| a1 | 18 | -41.3463744375 | 200 | | |
| a2 | 19 | 99.7565078437 | -185 | | mirror |
| | 20 | ∞ | 235 | | mirror |
| | 21 | ∞ | 0 | | |

| 18(a1) | 19(a2) |
|--------------------|--|
| 0.26122774128 | -4.84979881319 |
| 5.08543725099E-04 | 0.00113628431 |
| -2.31479750093E-04 | -3.98908468387E-04 |
| -1.06950444718E-05 | 1.91130104677E-07 |
| 3.86431430675E-06 | -5.95426848631E-09 |
| -4.74490920644E-08 | 4.64306112540E-11 |
| -9.03166761795E-10 | 6.54614682822E-14 |
| 3.49012367035E-11 | -1.74594047087E-15 |
| 5.98706752604E-14 | 4.67473510700E-18 |
| | 0.26122774128 5.08543725099E-04 -2.31479750093E-04 -1.06950444718E-05 3.86431430675E-06 -4.74490920644E-08 -9.03166761795E-10 3.49012367035E-11 |

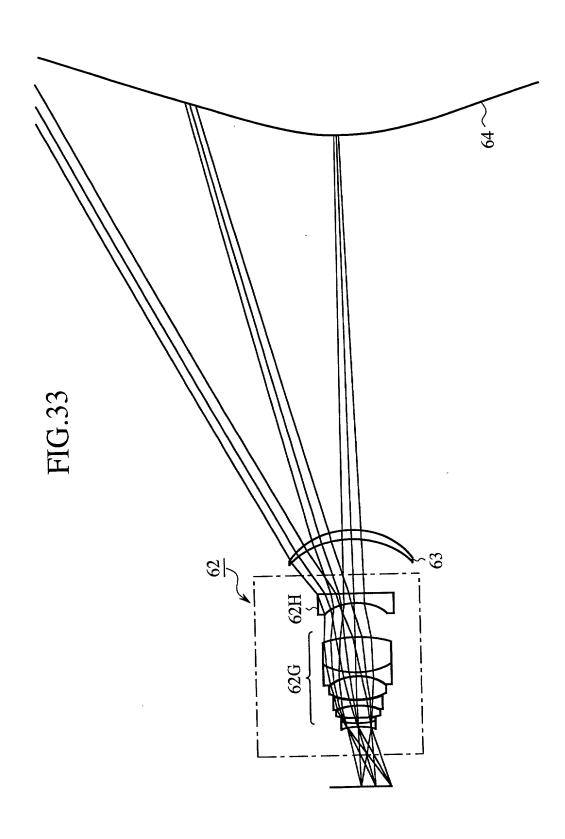


CONFIGURATION DATA

| | SURFACE NO. | RADIUS OF CURVATURE (mm) | THICKNESS (mm) | REFRACTIVE INDEX nd | ABBE'S NUMBER v d |
|------|----------------|-----------------------------|----------------|---------------------|----------------------|
| | 1 | ∞ | 30 | | |
| stop | 2 | 8 | 0 | | |
| | 3 | -14.8674137388 | 1 | 1.673 | 32.2 |
| | 4 | 18.5559337996 | 3.4 | 1.800 | 42.3 |
| al | 5 | -74.0536848715 | 0.2 | | |
| | 6 | 43.6696369615 | 5.7 | 1.734 | 51.1 |
| | 7 | -18.5192833307 | 0.2 | | |
| | 8 | -40.4744736638 | 2.8 | 1.689 | 31.2 |
| | 9 | 28.1242054109 | 0.721410946123 | | |
| | 10 | 39.1984702090 | 10.4 | 1.734 | 51.1 |
| | 11 | -18.6885145614 | 0.2 | | 1 - 2 - 2 |
| | 12 | -21.0924464244 | 1.2 | 1.620 | 36.3 |
| | 13 | 34.4444350214 | 18 | 1.805 | 25.5 |
| | 14 | -51.9422716099 | 18.3565287687 | | |
| | 15 | -22.3972908894 | 4.1 | 1.699 | 30.1 |
| a2 | 16 | -479.2220790420 | 28 | | = - |
| | 17 | -36.7674341411 | 4.3 | | 70.4 |
| a3 | 18 | -27.7830763359 | 200 | | |
| a4 | 19 | 99.7654217668 | | | mirror |
| | 20 | 00 | 235 | | mirror |
| | 21 | 8 | 0 | | |

| 5(a1) | 16(a2) |
|-------------------|-------------------------------------|
| -30.6753040764 | 689.5547308060 |
| 5.71039286720E-05 | 7.13647300379E-06 |
| 2.25311896143E-07 | 1.19485813073E-08 |
| | -30.6753040764 5.71039286720E-05 |

| SURFACE NO. | 18(a3) | 19(a4) |
|-------------|--------------------|--------------------|
| k | -0.1793477113 | -4.4237794828 |
| AR1 | 0 | 0.0012582257858 |
| AR2 | 0.00365144111288 | -0.000570832798628 |
| AR3 | -2.08418127864E-05 | 1.91941370309E-07 |
| AR4 | 3.06790134130E-06 | -3.45235087113E-09 |
| AR5 | 1.28809224318E-07 | 5.75454836583E-11 |
| AR6 | -6.46419170810E-09 | 2.11008995385E-14 |
| AR7 | 5.60800488063E-11 | -2.13910807996E-15 |
| AR8 | 2.10739642573E-12 | 5.96598292076E-18 |

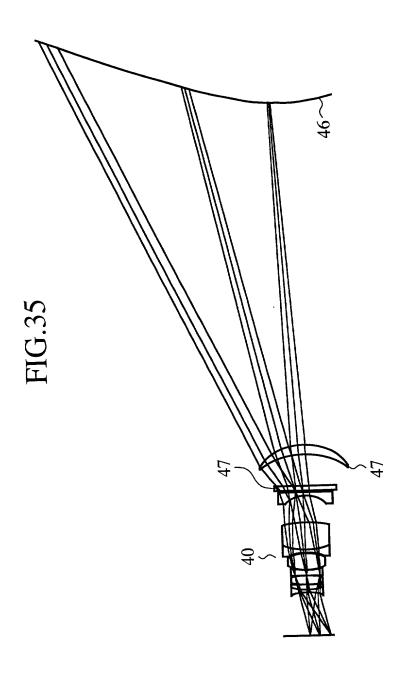


CONFIGURATION DATA

| | SURFACE NO. | RADIUS OF CURVATURE (mm) | THICKNESS (mm) | REFRACTIVE INDEX nd | ABBE'S NUMBER v d |
|---------|----------------|-----------------------------|----------------|------------------------|----------------------|
| | 1 | ∞ | 30 | | |
| | 2 | 00 | 0 | | |
| | 3 | -15.44465 | 1 | 1.673 | 32.2 |
| | 4 | 22.29631 | 3.4 | 1.806 | 40.7 |
| al | 5 | -213.55978 | 0.2 | | |
| | 6 | 39.68662 | 5.7 | 1.697 | 55.5 |
| stop | 7 | -21.23434 | 0.2 | | |
| | 8 | -76.49347 | 2.8 | 1.689 | 31.2 |
| | 9 | 24.81811 | 0.28796 | | |
| | 10 | 28.11617 | 10.0 | 1.734 | 51.1 |
| | 11 | -19.46732 | 0.5 | | |
| | 12 | -21.07916 | 2.0 | 1.620 | 36.3 |
| | 13 | 41.20070 | 17.2 | 1.805 | 25.5 |
| | 14 | -47.74581 | 20.2 | | |
| | 15 | -19.64666 | 1.8 | 1.699 | 30.1 |
| | 16 | -285.50057 | 1.2 | | |
| | 17 | -296.46506 | 2.3 | 1.583 | 30.2 |
| a2 | 18 | -296.46506 | 22 | | |
| <u></u> | 19 | -41.83187 | 6.5 | 1.493 | 58.3 |
| a3 | 20 | -28.78769 | 222.6 | | |
| a4 | 21 | 101.38793 | -185 | | mirror |
| | 22 | ∞ | 235 | | mirror |
| | 23 | ∞ | 0 | | <u> </u> |

| SURFACE NO. | 5(a1) | 18(a2) |
|-------------|-------------|-------------|
| k | 94.803794 | 231.121259 |
| Α | 5.68235E-05 | 7.22298E-06 |
| В | 9.96524E-08 | 1.21095E-08 |

| SURFACE NO. | 20(a3) | 21(a4) |
|-------------|-------------|-------------|
| k | -0.034091 | -4.2611 |
| AR1 | 0 | 0.0017037 |
| AR2 | 2.3760E-03 | -5.4703E-04 |
| AR3 | -1.3655E-05 | 2.2681E-07 |
| AR4 | 2.0976E-06 | -3.7501E-09 |
| AR5 | 1.6646E-07 | 5.5657E-11 |
| AR6 | -7.5921E-09 | 2.2956E-14 |
| AR7 | 6.4636E-11 | -2.0653E-15 |
| AR8 | 2.7930E-12 | 5.8043E-18 |



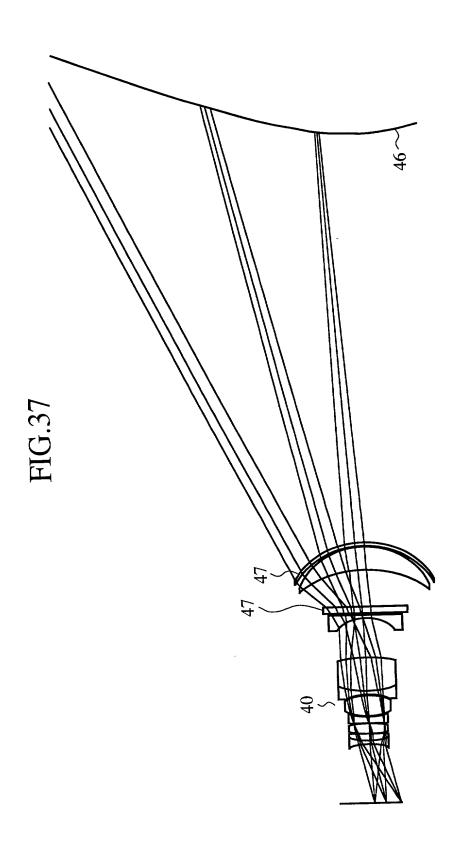
CONFIGURATION DATA

| | SURFACE NO. | RADIUS OF CURVATURE (mm) | THICKNESS (mm) | REFRACTIVE INDEX nd | ABBE'S NUMBER vd |
|------|----------------|-----------------------------|----------------|------------------------|---------------------|
| | 1 | ∞ | 30 | | |
| | 2 | ∞ | 0 | | |
| | 3 | -17.34243 | 1 | 1.673 | 32.2 |
| | 4 | 18.31171 | 3.4 | 1.806 | 40.7 |
| al | 5 | -431.65942 | 0.2 | | |
| _aı | 6 | 29.08428 | 5.7 | 1.697 | 55.5 |
| stop | 7 | -22.39460 | 0.2 | | |
| stop | 8 | -70.37449 | 2.8 | 1.689 | 31.2 |
| | 9 | 20.78432 | 0.422916 | | |
| | 10 | 24.46057 | 10 | 1.734 | 51.1 |
| | 11 | -25.60922 | 0.5 | | |
| | 12 | -27.87924 | 2.0 | 1.620 | 36.3 |
| | 13 | 33.45787 | 17.2 | 1.805 | 25.5 |
| | 14 | -48.80317 | 20.2 | | |
| | 15 | -16.72859 | 1.8 | 1.699 | 30.1 |
| | 16 | -472.97398 | 1.2 | | 20.2 |
| | 17 | -432.97164 | 2.3 | 1.583 | 30.2 |
| a2 | 18 | -432.97164 | 18.59086 | | 70.4 |
| | 19 | -47.05214 | . 12 | 1.487 | 70.4 |
| | 20 | -31.45896 | 0.2 | | 50.2 |
| | 21 | -34.76999 | 2 | 1.493 | 58.3 |
| a3 | 22 | -36.76734 | 205.6 | | incom |
| a4 | 23 | 100.46532 | -185 | | mirror mirror |
| | 24 | ∞ | 235 | | miroi |
| | 25 | ∞ | 0 | | |

| ASPHERICAL | OKI ACE COEFFE | |
|-------------|----------------|--------------|
| SURFACE NO. | 5(a1) | 18(a2) |
| le le | 1123.385176 | 453.751298 |
| - K | 5.72413E-05 | 1.02654E-05 |
| A | 1.15746E-07 | -1.71142E-09 |
| D L | 1.137-1012 6 | |

| 22(a3) |
|--------------|
| 0.306525 |
| 8.66086E-07 |
| 1.02860E-09 |
| -1.51387E-12 |
| 1.15559E-15 |
| |

| SURFACE NO. | 23(a4) |
|-------------|-------------|
| k | -4.3207 |
| AR1 | 2.0932E-03 |
| AR2 | -5.3836E-04 |
| AR3 | 3.0012E-07 |
| AR4 | -3.7476E-09 |
| AR5 | 5.3519E-11 |
| AR6 | 9.5182E-15 |
| AR7 | -2.0763E-15 |
| AR8 | 6.2448E-18 |



CONFIGURATION DATA

| | SURFACE NO. | RADIUS OF CURVATURE (mm) | THICKNESS (mm) | REFRACTIVE INDEX nd | ABBE'S NUMBER vd |
|------|----------------|-----------------------------|----------------|---------------------|---------------------|
| | 1 | 8 | 30 | | |
| stop | 2 | -13.4261664433 | 4.4 | 1.805 | 25.5 |
| | 3 | -18.5697706537 | 0.1 | | |
| | 4 | 8 | 0 | | |
| | 5 | 96.5265031257 | 5.7 | 1.788 | 47.5 |
| | 6 | -17.4308819114 | 0.397498402225 | | |
| | 7 | -16.4228675060 | 1 | 1.805 | 25.5 |
| | 8 | -60.2043783294 | 1.342174017 | | |
| | 9 | -73.1869001667 | 1.8 | 1.689 | 31.2 |
| | 10 | 173.0147244620 | 0.780042494674 | | |
| | 11 | -129.3791808580 | 2.8 | 1.773 | 49.6 |
| | 12 | -33.6477898040 | 15.8750139763 | | |
| | 13 | 196.0051080580 | 5.2 | 1.805 | 39.6 |
| | 14 | -74.0063177141 | 52.0143705416 | | |
| | 15 | -28.5012732493 | 1.3 | 1.581 | 40.9 |
| | 16 | -55.6266733382 | 28 | | |
| | 17 | -30.9418208415 | 1.3 | 1.487 | 70.4 |
| a1 | 18 | -45.9668803671 | 128 | | |
| a2 | 19 | 85.3955888127 | -190 | | mirror |
| | 20 | ∞ | 235 | | mirror |
| | 21 | ∞ | . 0 | | |

| SURFACE NO. | 18(a1) | 19(a2) |
|-------------|--------------------|--------------------|
| k | 0.192778928749 | -5.6077761791170 |
| AR1 | 1.774508723E-03 | -0.00114723527653 |
| AR2 | -8.66337658673E-04 | -4.95421889495E-04 |
| AR3 | -4.78199895283E-07 | -9.97000490749E-08 |
| AR4 | 4.28880134809E-06 | -6.48715736783E-09 |
| AR5 | -3.13809231047E-08 | 4.81877304832E-11 |
| AR6 | -8.86192485666E-10 | 8.84967561950E-14 |
| AR7 | 2.69189766537E-11 | -1.65622637923E-15 |
| AR8 | -8.33108856115E-14 | 4.18083936646E-18 |

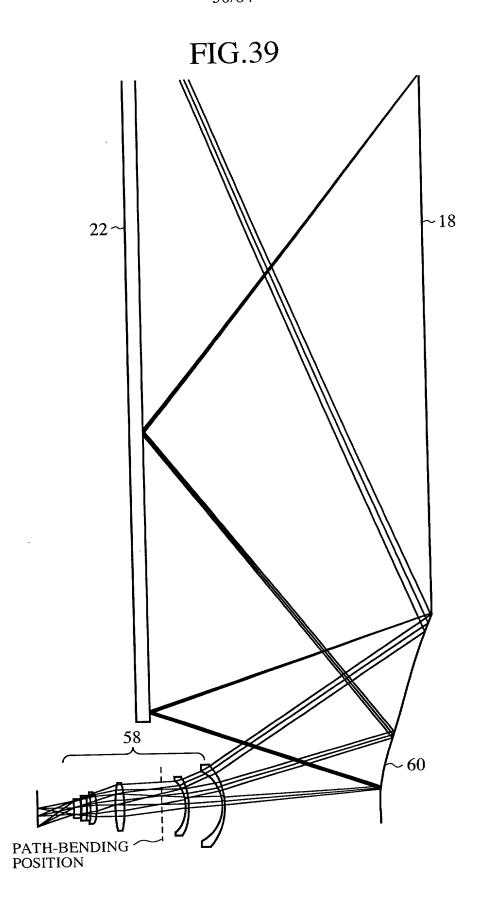


FIG.40A

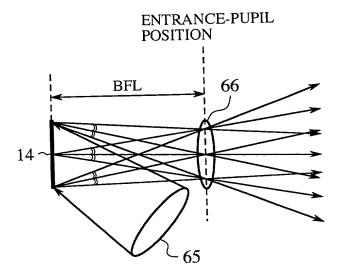


FIG.40B

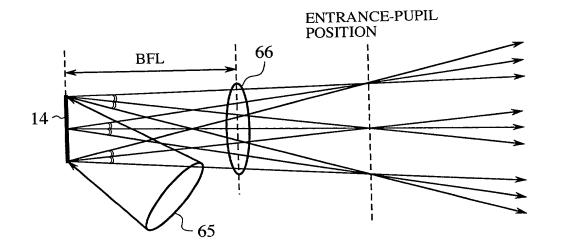


FIG.41A

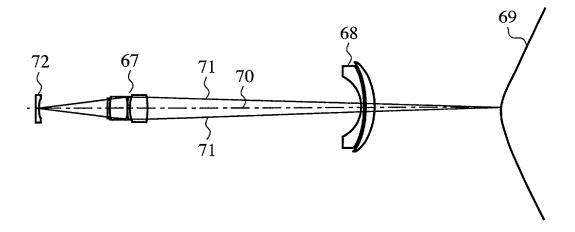
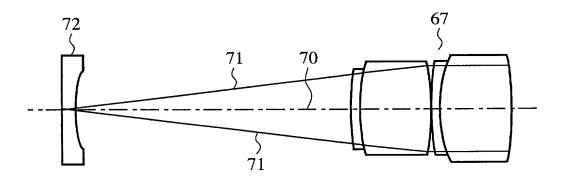


FIG.41B



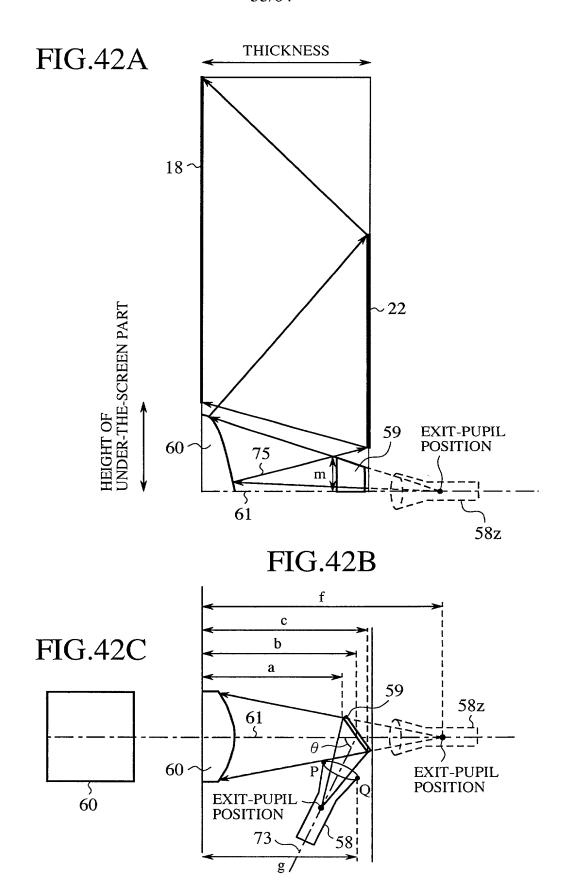


FIG.43A

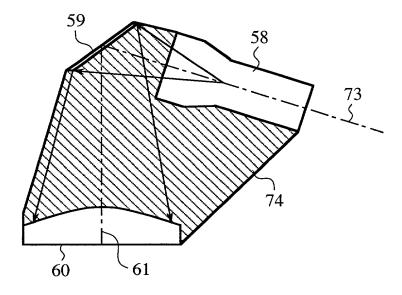
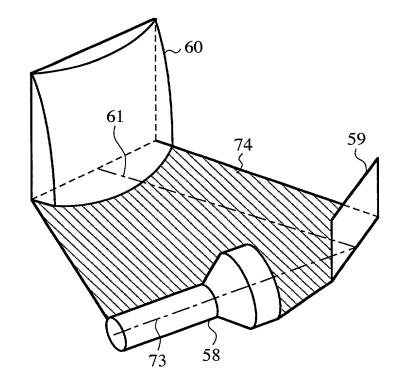
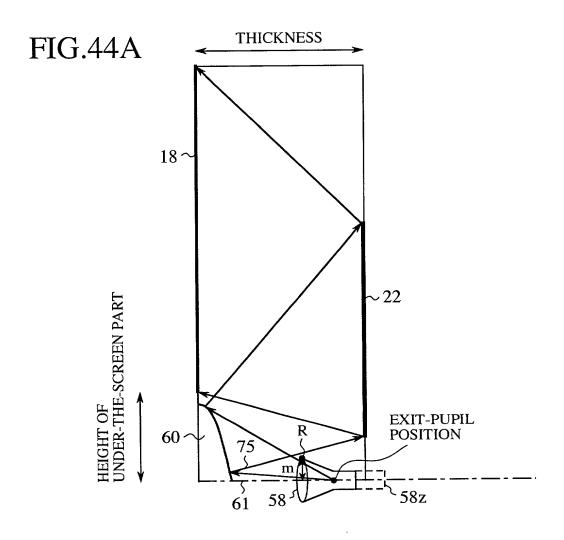
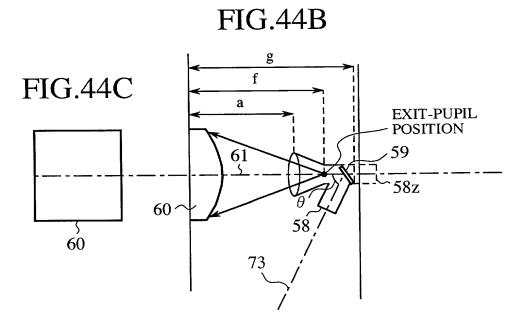
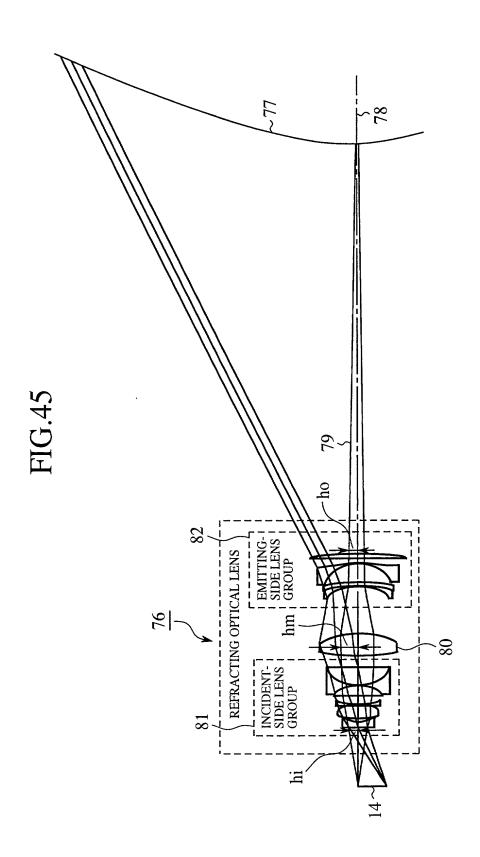


FIG.43B









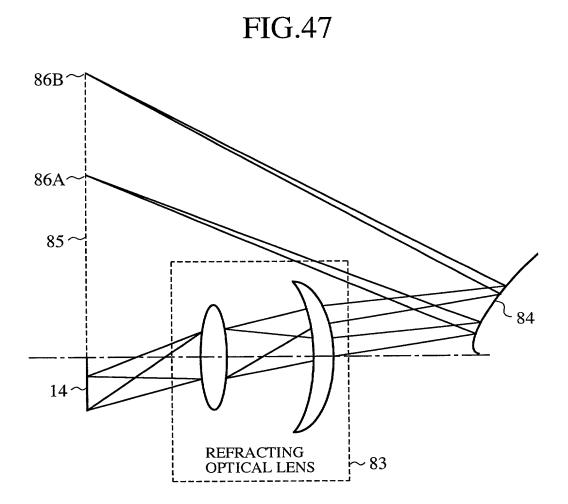
| | SURFACE NO. | RADIUS OF CURVATURE (mm) | THICKNESS (mm) | REFRACTIVE INDEX nd | ABBE'S NUMBER v d |
|-------|----------------|-----------------------------|----------------|---------------------|----------------------|
| | 1 | 8 | 30 | | |
| stop | 2 | ∞ | 0.759413002 | | |
| • | 3 | -18.08246509 | 1.293319809 | 1.645 | 34.2 |
| | 4 | 14.76967369 | 3.046801019 | 1.812 | 46.5 |
| al | 5 | -89.85177909 | 0.1 | | |
| | 6 | 38.06047971 | 6.316794446 | 1.652 | 57.8 |
| | 7 | -22.10508829 | 0.1 | | |
| | 8 | -369.4581445 | 0.75 | 1.669 | 35.9 |
| ····· | 9 | 30.52687812 | 3.514448063 | | |
| | 10 | 178.9300355 | 5.999639512 | 1.755 | 51.6 |
| | 11 | -18.24854958 | 0.1 | | |
| | 12 | -20.32053065 | 0.75 | 1.609 | 37.1 |
| | 13 | 18.88427392 | 7.742297755 | 1.598 | 61.5 |
| | 14 | 118.7889006 | 6.210410756 | | |
| | 15 | 75.82426822 | 11.42955737 | 1.805 | 25.4 |
| | 16 | -45.48096773 | 23.85514754 | | |
| | 17 | -23.81858954 | 0.75 | 1.605 | 37.6 |
| | 18 | -78.5219672 | 0.948010192 | | |
| | 19 | -51.73173658 | 0.75 | 1.578 | 41.3 |
| a2 | 20 | 234.0322249 | 1.220004284 | | |
| | 21 | -80.15802174 | 8.419857503 | 1.608 | 60.9 |
| | 22 | -20.55147589 | 0.75 | 1.808 | 30.7 |
| a3 | 23 | -48.10173307 | 2.848868085 | | |
| | 24 | -3046.703797 | 1.735926726 | 1.722 | 28.6 |
| a4 | 25 | -2.400127241 | 208.6471271 | | <u> </u> |
| a5 | 26 | 98.10117098 | -185 | | mirror |
| | 27 | | 235 | ļ | mirror |
| | 28 | ∞ | 0 | | <u> </u> |

ASPHERICAL SURFACE COEFFICIENT

| SURFACE NO. | 5(al) | 20(a2) |
|-------------|--------------------|--------------------|
| k | -4.32940673132E+17 | -1.21836467670E+03 |
| A | 6.70013658492E-05 | -5.88743894511E-06 |
| В | 1.37864501703E-07 | -1.73552289497E-08 |
| С | -7.06479501573E-10 | 1.18834320118E-11 |
| D | 5.53966960363E-12 | -6.80318146301E-14 |

| SURFACE NO. | 23(a3) | 25(a4) |
|-------------|-------------------|--------------------|
| k | -4.724966832 | -1.50277006191E+15 |
| A | 7.74200201398E-06 | -4.02340217867E-06 |
| В | 1.45468946297E-10 | 1.93027721059E-09 |
| С | 6.05222618687E-12 | 1.94579724047E-12 |
| D | 2.84368236883E-15 | -5.14946061841E-15 |

| SURFACE NO. | 26(a5) |
|-------------|-------------------|
| k | -4.196831481 |
| AR1 | 0.002610563 |
| AR2 | -0.000642464 |
| AR3 | -4.3515321786E-07 |
| AR4 | -3.6279999567E-09 |
| AR5 | 1.0315413556E-10 |
| AR6 | -1.0512922326E-13 |
| AR7 | -2.4533992418E-15 |
| AR8 | 5.0201588256E-18 |
| AR9 | -7.7746688347E-21 |
| AR10 | 1.8233746123E-23 |
| AR11 | 4.0004474833E-25 |
| AR12 | 1.9572075845E-27 |
| AR13 | -1.0853722256E-29 |



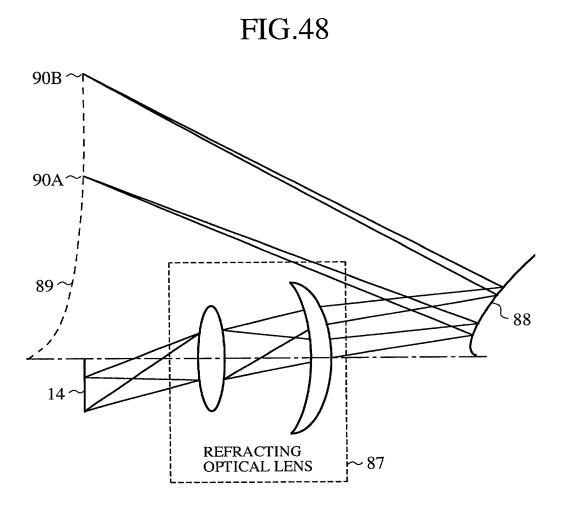


FIG.49

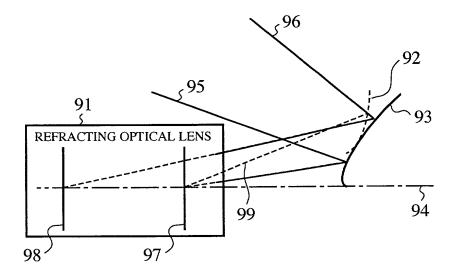
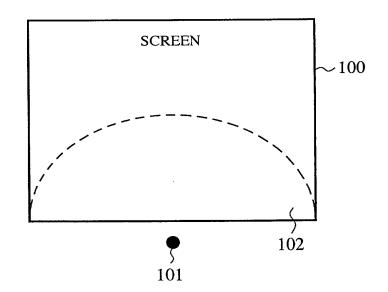
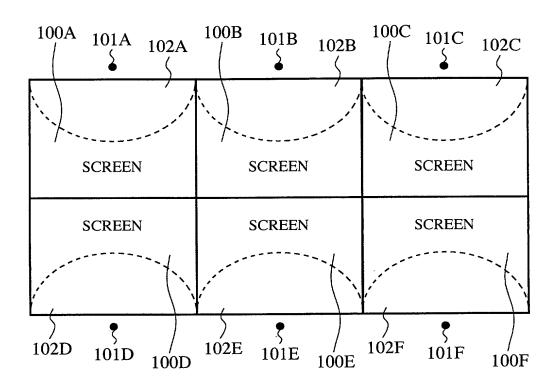


FIG.50



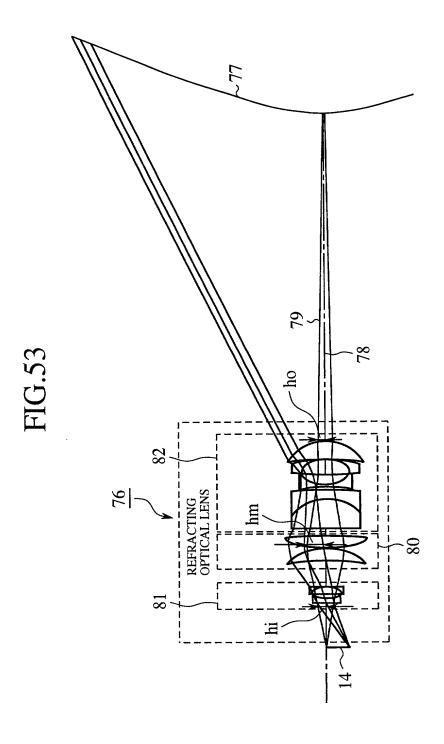


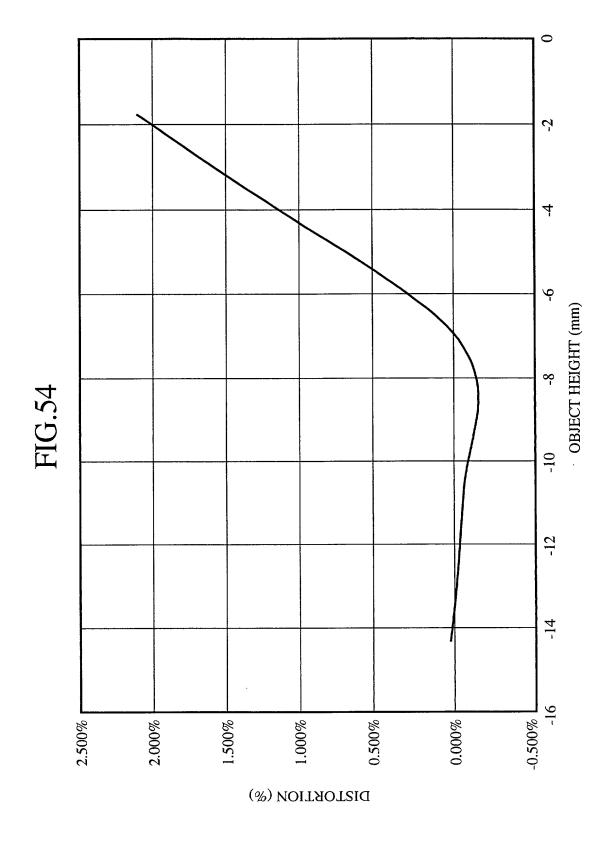
| | SURFACE NO. | RADIUS OF CURVATURE (mm) | THICKNESS (mm) | REFRACTIVE INDEX nd | ABBE'S NUMBER v d |
|------|----------------|-----------------------------|----------------|------------------------|----------------------|
| | 1 | ∞ | 30 | | |
| stop | 2 | ∞ | 0 | | |
| | 3 | -36.20569316 | 2.450194072 | 1.755200 | 27.5 |
| | 4 | 12.28575345 | 2.84681536 | 1.743300 | 49.3 |
| a1 | 5 | -51.08200239 | 0.1 | | |
| | 6 | 60.74463277 | 4.440052074 | 1.729160 | 54.7 |
| | 7 | -11.85997421 | 0.75 | 1.805181 | 25.5 |
| | 8 | -87.60955983 | 18.16014798 | | |
| | 9 | -100.7895973 | 7.55 | 1.805181 | 25.5 |
| | 10 | -31.95229299 | 0.1 | | |
| | 11 | 55.14907044 | 9.008423098 | 1.805181 | 25.5 |
| | 12 | -151.9493125 | 5.05 | | |
| | 13 | 1123.09334 | 20 | 1.696802 | 55.5 |
| | 14 | -24.68341928 | 6.516931913 | 1.805181 | 25.5 |
| | 15 | -226.0041685 | 1.971694287 | | |
| | 16 | -47.77345182 | 1.3 | 1.806100 | 33.3 |
| | 17 | 19.4398449 | 6.997754926 | 1.622994 | 58.1 |
| | 18 | 122.6856621 | 9.290681858 | | |
| | 19 | -18.03371133 | 1 | 1.805181 | 25.5 |
| | 20 | -61.36251152 | 0.2 | | |
| | 21 | -213.3989174 | 12.93782856 | 1.496997 | 81.6 |
| | 22 | -27.11650652 | 0.3 | 1.525 | 49.0 |
| a2 | 23 | -27.1165053 | 220 | | |
| a3 | 24 | 97.9514514 | -180 | | mirror |
| | 25 | ∞ | 230 | | mirror |
| | 26 | ∞ | 0 | | 1 |

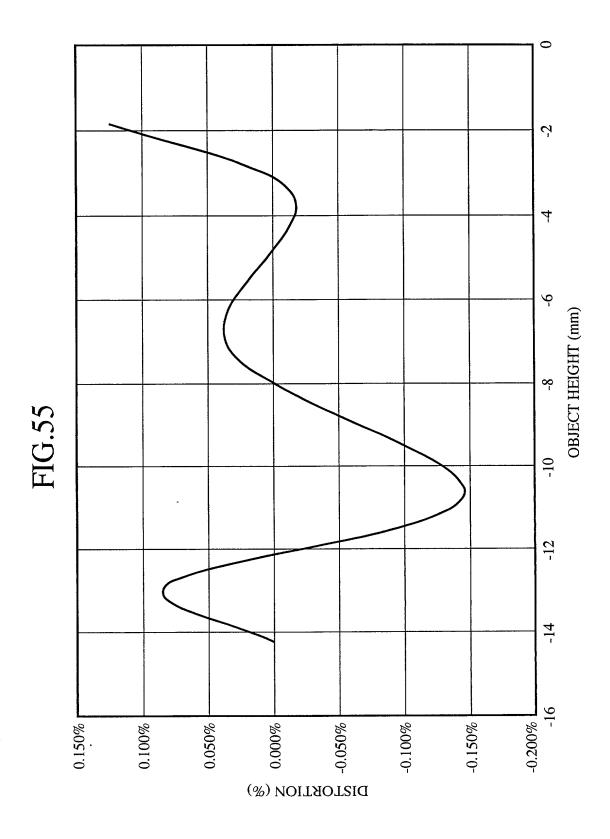
ASPHERICAL SURFACE COEFFICIENT

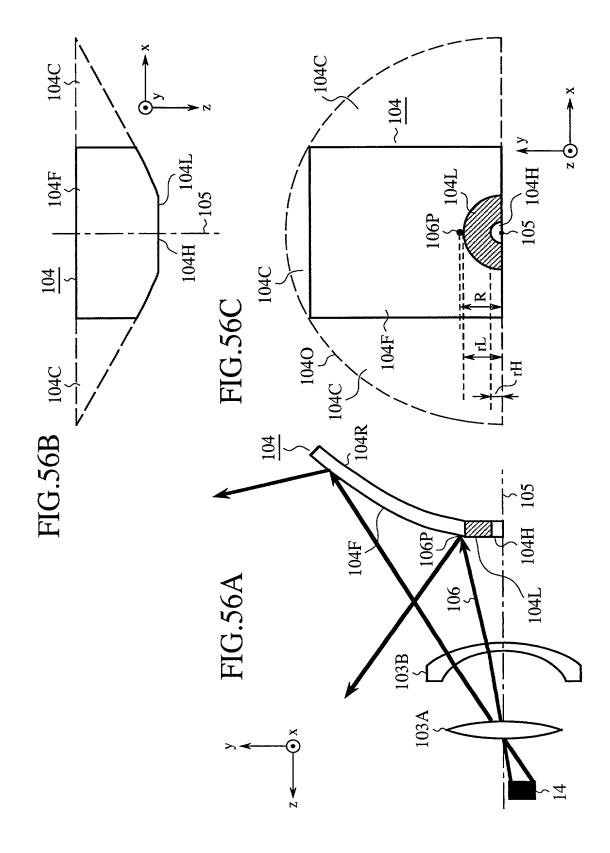
| SURFACE NO. | 5(a1) | 23(a2) |
|-------------|--------------------|--------------------|
| k | -4.32940673132E+17 | -6.44192632533E-02 |
| A | 2.06464810175E-05 | 2.25891515654E-06 |
| В | 4.22130612543E-08 | 1.27763942489E-09 |
| С | -4.28109161934E-10 | -1.48949338494E-12 |
| D | 3.18505494008E-12 | 4.41143555338E-15 |

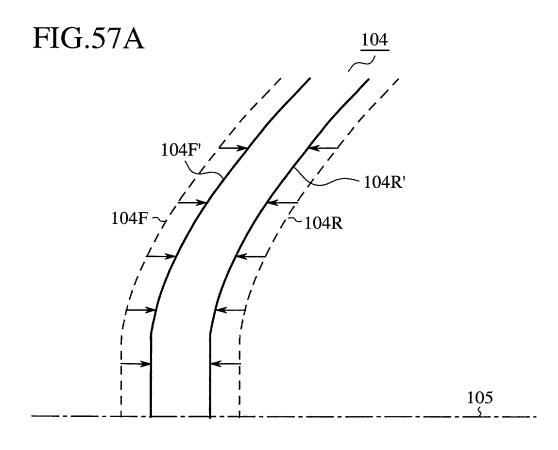
| SURFACE NO. | 24(a3) |
|-------------|--------------------|
| k | -5.890257058 |
| Α | -1.68371401519E-09 |
| В | -3.15175891126E-13 |
| С | 1.85045591079E-17 |
| D | -4.44896288674E-22 |
| E | 4.06924422352E-27 |











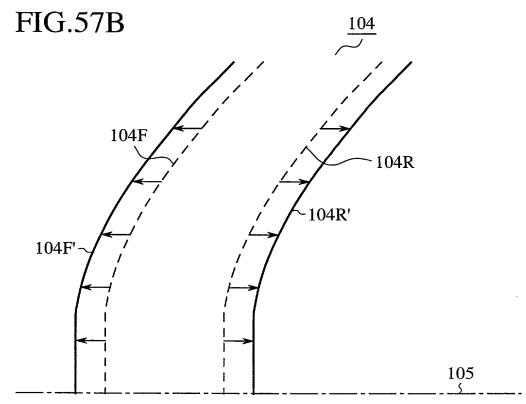


FIG.58A

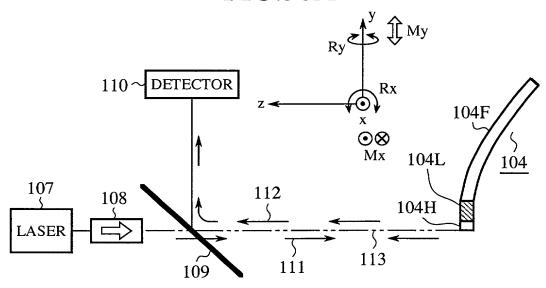
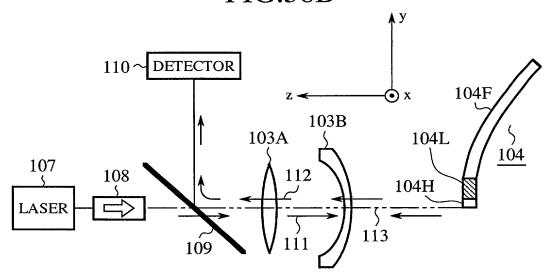


FIG.58B



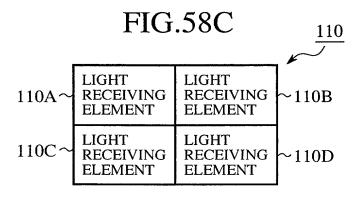


FIG.59

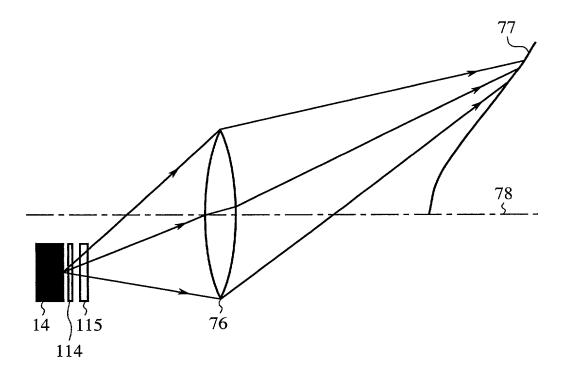


FIG.60A

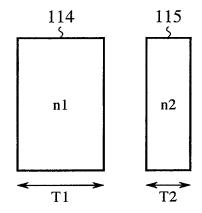


FIG.60B

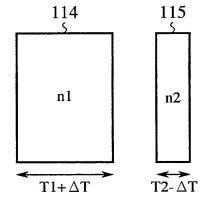
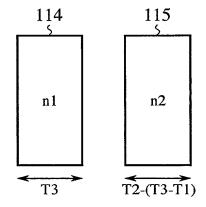


FIG.60C

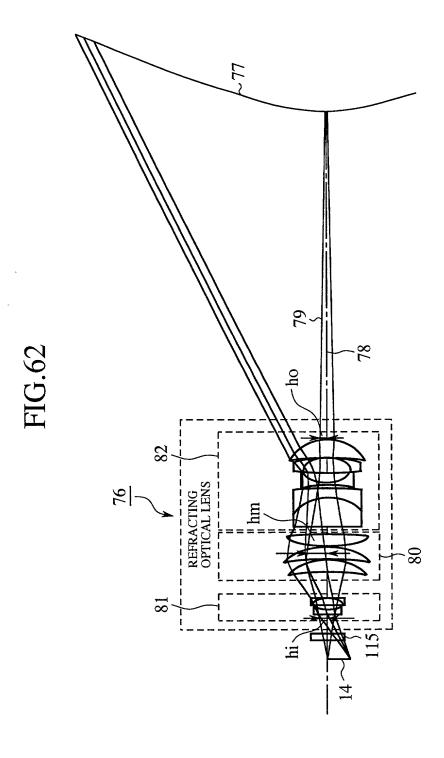


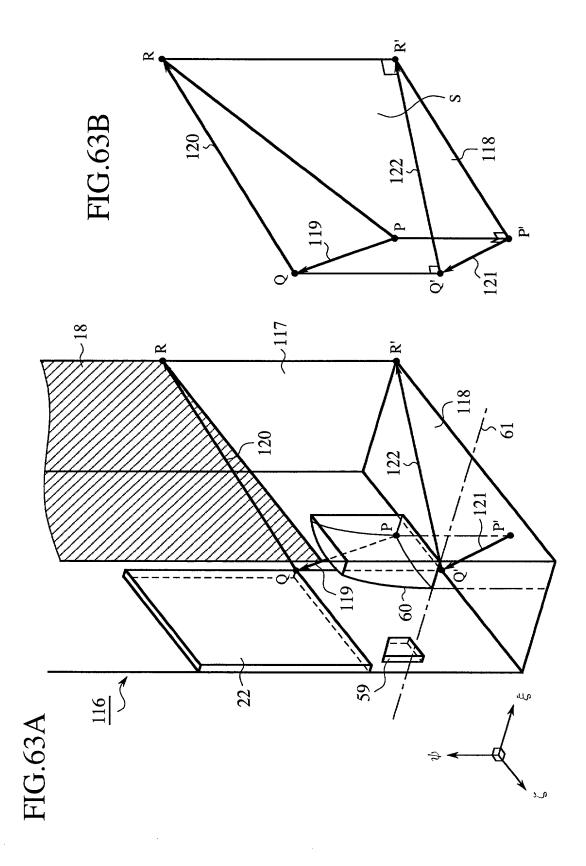
| | | RADIUS OF | THICKNESS (mm) | REFRACTIVE | ABBE'S |
|------|-----|----------------|----------------|------------|-----------|
| | NO. | CURVATURE (mm) | | INDEX nd | NUMBER vd |
| | 1 | ∞ | 16.968 | | |
| | 2 | ∞ | 4.5 | 1.487488 | 70.4 |
| | 3 | ∞ | 10 | | |
| stop | 4 | 8 | 0 | | |
| | 5 | -32.67553228 | 2.2 | 1.755200 | 27.5 |
| | 6 | 12.58063824 | 3 | 1.743300 | 49.3 |
| a1 | 7 | -52.90163133 | 0.2 | | |
| | 8 | 61.0404767 | 4.4 | 1.729160 | 54.7 |
| | 9 | -11.15923642 | 0.75 | 1.805181 | 25.5 |
| | 10 | -76.60896233 | 15.79661203 | | |
| | 11 | -124.8193679 | 7 | 1.805181 | 25.5 |
| | 12 | -38.93002102 | 0.2 | | |
| | 13 | -443.3986638 | 7 | 1.805181 | 25.5 |
| | 14 | -52.34621034 | 0.2 | | |
| | 15 | 79.93164049 | 7 | 1.805181 | 25.5 |
| | 16 | -309.0156537 | 5.05 | | |
| | 17 | -154.4333819 | 20 | 1.696802 | 55.5 |
| | 18 | -23.63819092 | 5.65 | 1.805181 | 25.5 |
| | 19 | -72.50920655 | 0.1 | | |
| | 20 | -135.8874032 | 1.3 | 1.806100 | 33.3 |
| | 21 | 19.12119784 | 6.033332559 | 1.622994 | 58.1 |
| | 22 | 47.30795139 | 10.38100593 | | |
| | 23 | -17.33118223 | 1 | 1.805181 | 25.5 |
| | 24 | -107.7455893 | 0.2 | | |
| | 25 | 6275.660982 | 13.85243075 | 1.496997 | 81.6 |
| | 26 | -28.5622612 | 0.3 | 1.517900 | 52.3 |
| a2 | 27 | -28.56225984 | 220 | | |
| a3 | 28 | 100.7024021 | -180 | | mirror |
| | 29 | 8 | 230 | | mirror |
| | 30 | ∞ | 0 | | |

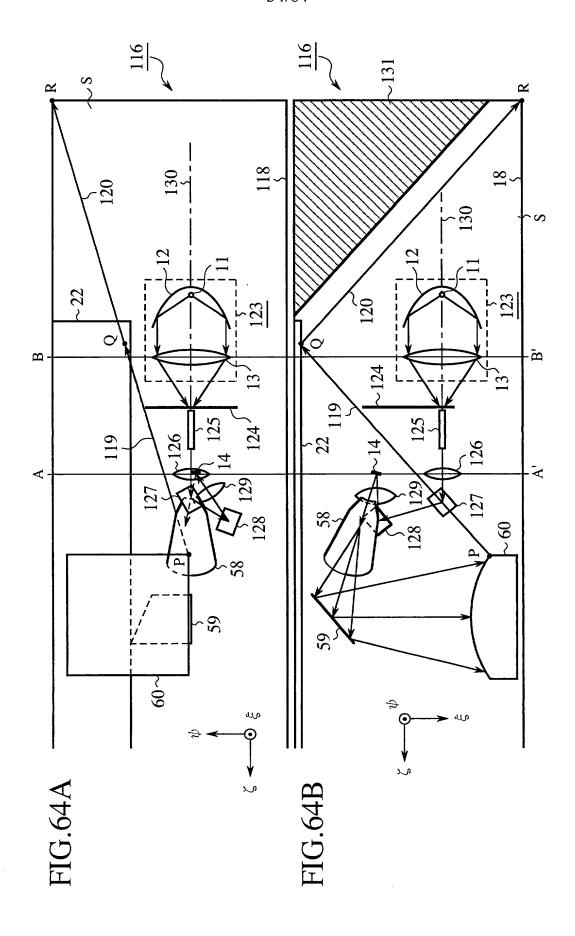
ASPHERICAL SURFACE COEFFICIENT

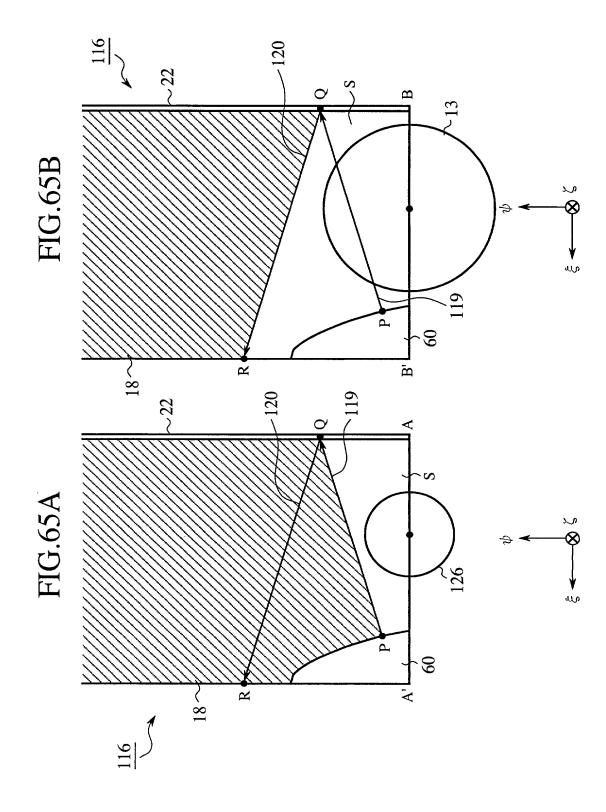
| SURFACE NO. | 7(a1) | 27(a2) |
|----------------------|--------------------|--------------------|
| k -4.32940673132E+17 | | -2.28341058574E-01 |
| A | 2.12269026040E-05 | 6.27190024566E-07 |
| В | 3.29700420778E-08 | 1.37772750580E-10 |
| С | -8.29121655424E-10 | -2.97585526938E-12 |
| D | 8.20349889370E-12 | 4.49026971395E-15 |

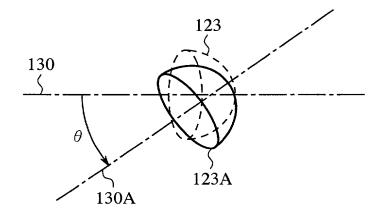
| SURFACE NO. | 28(a3) | |
|-------------|--------------------|--|
| k | -5.53539236314 | |
| A | -1.01852653476E-08 | |
| В | 3.39532791265E-13 | |
| С | -7.71671397273E-18 | |
| D | 8.40279684117E-23 | |

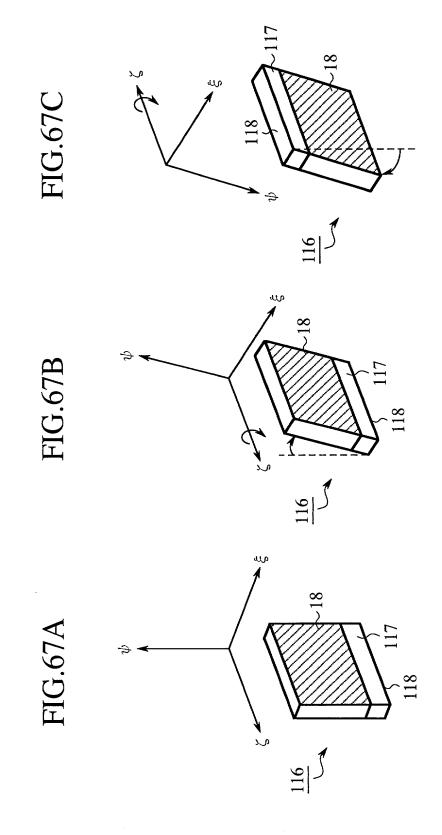


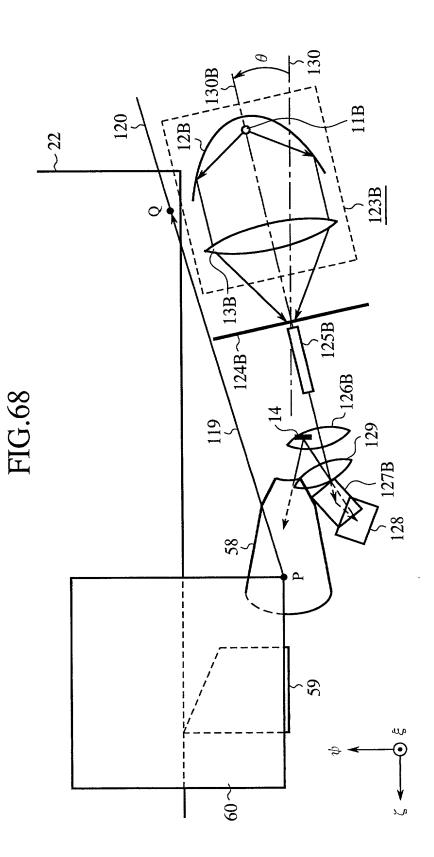


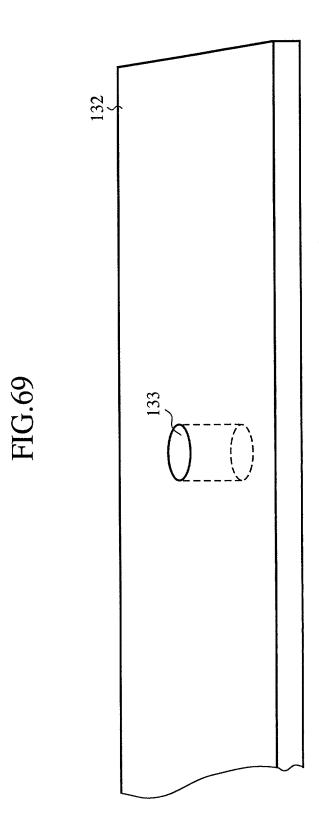












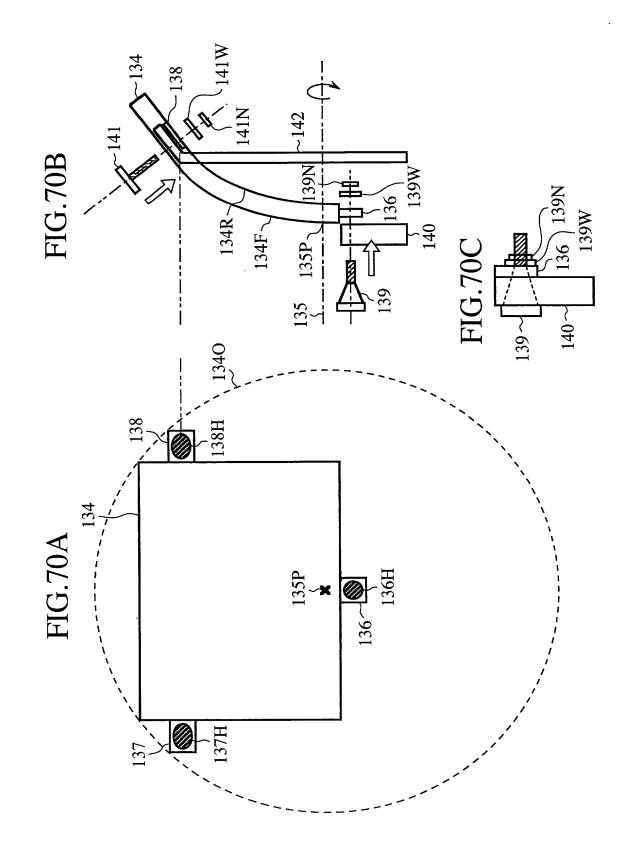
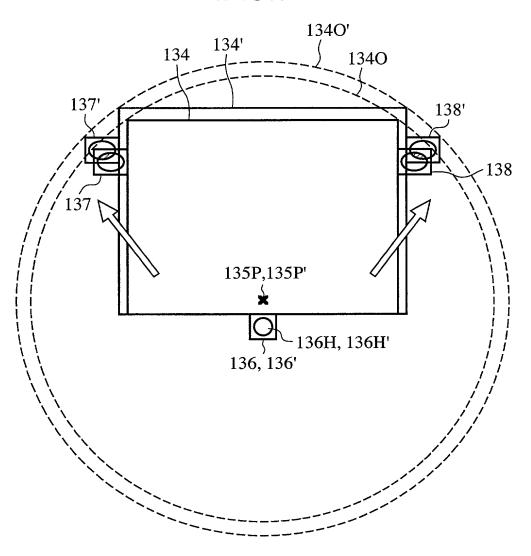


FIG.71A



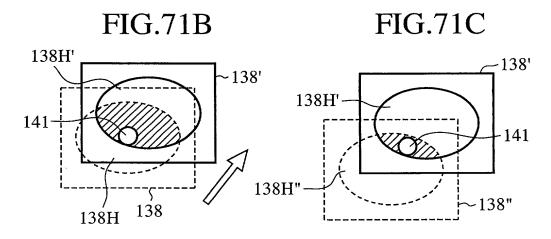


FIG.72A

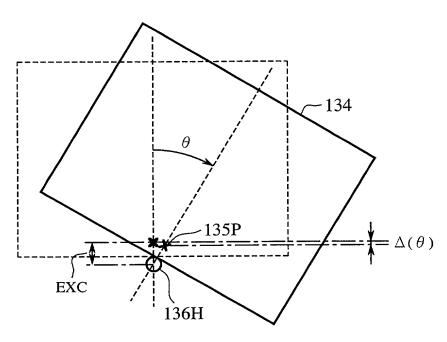


FIG.72B

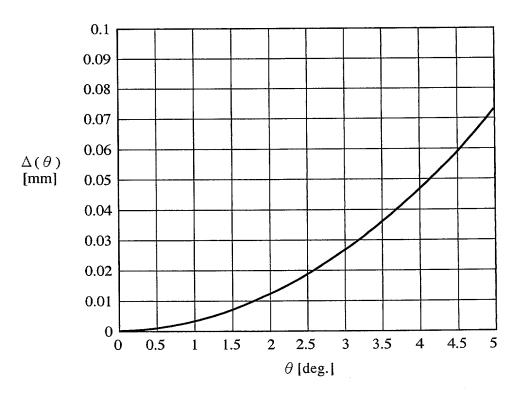
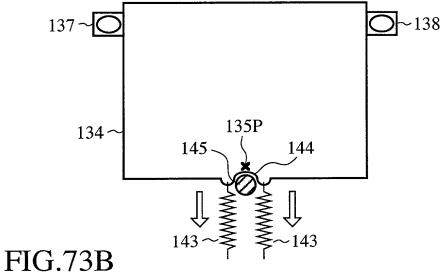


FIG.73A



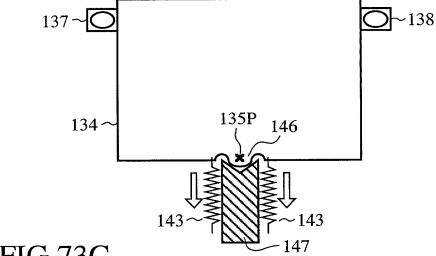


FIG.73C

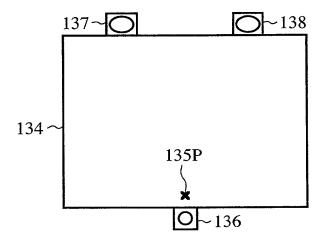


FIG.74

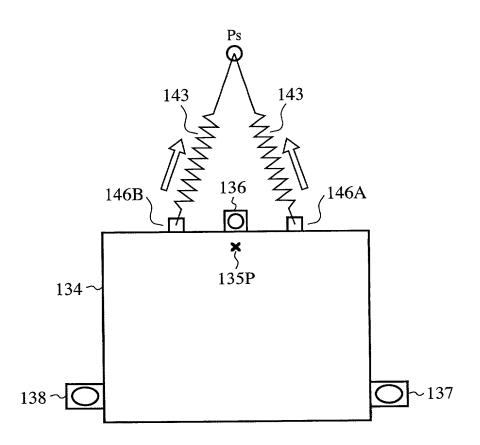


FIG.75

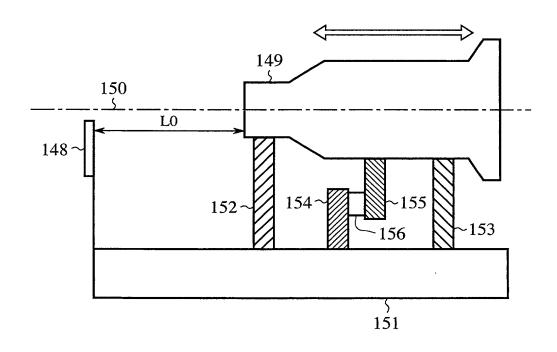


FIG.76

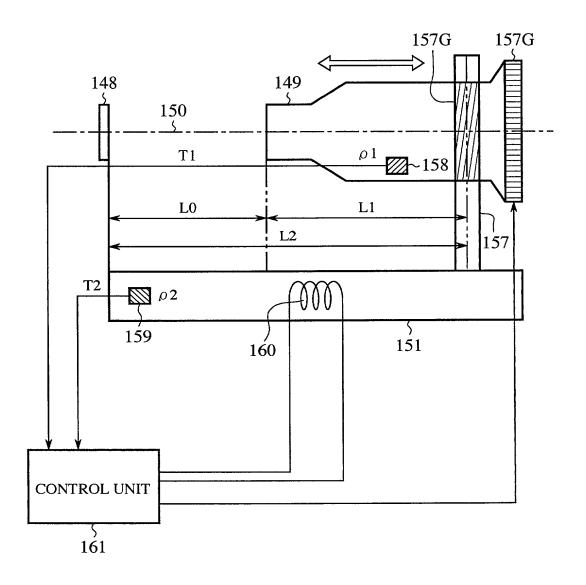


FIG.77A

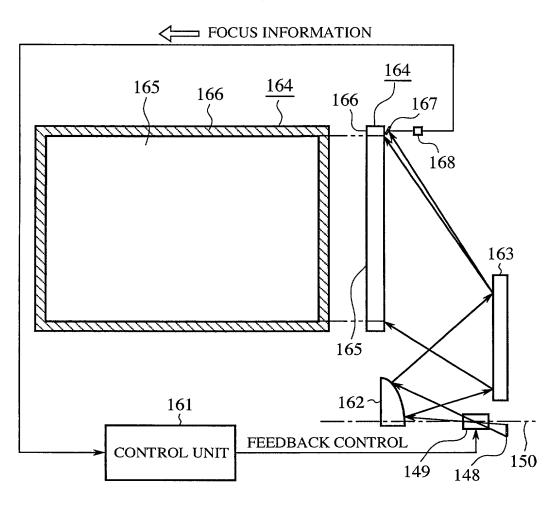
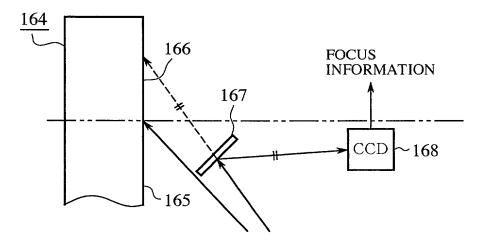


FIG.77B



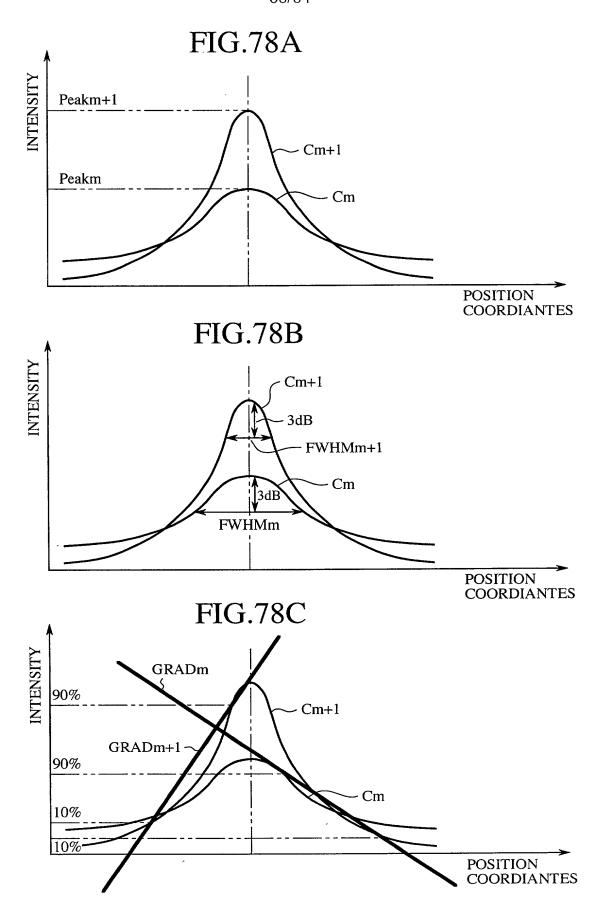
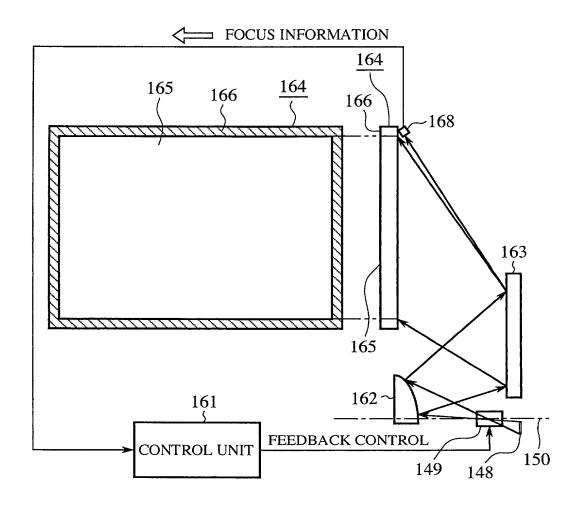


FIG.79



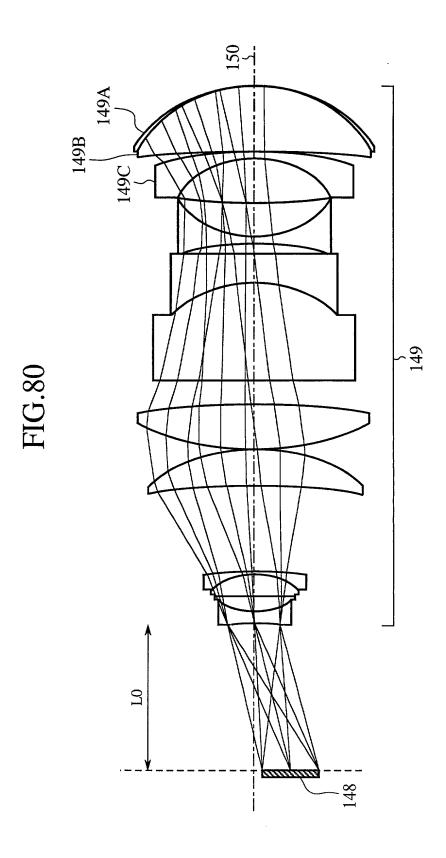


FIG.81

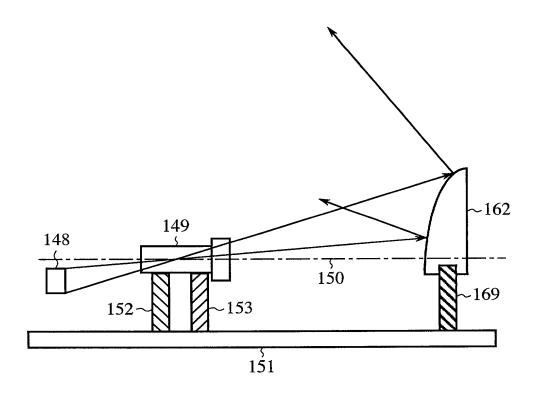


FIG.82A

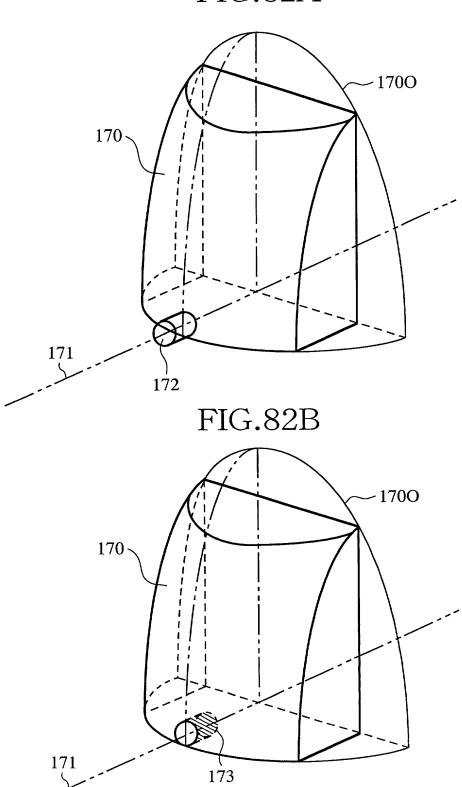
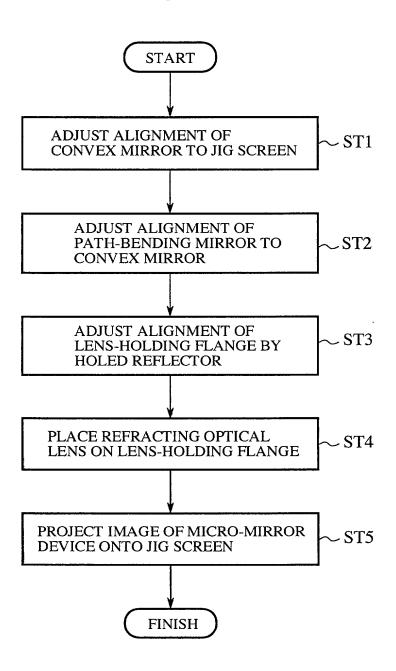


FIG.83



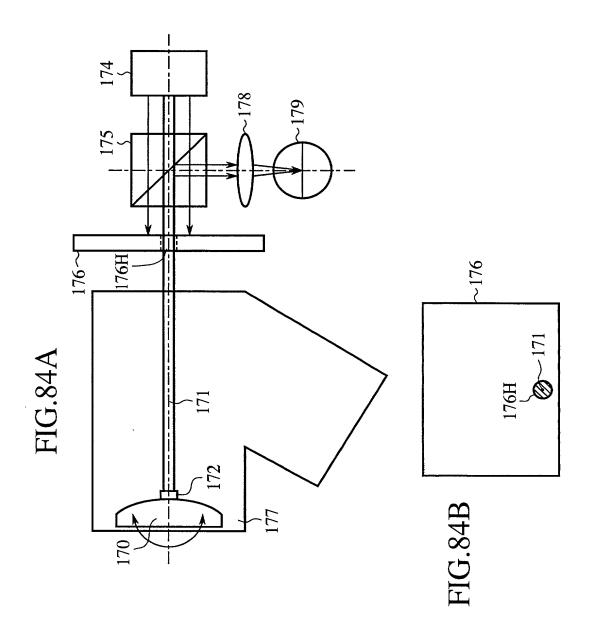


FIG.85

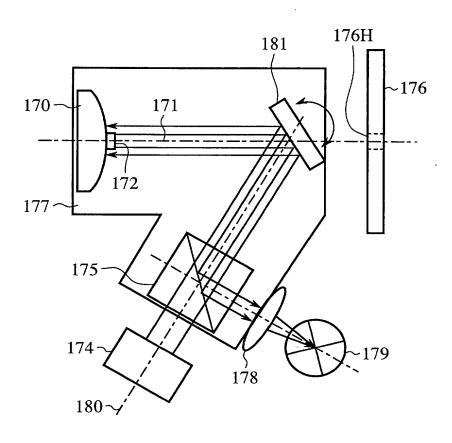


FIG.86A

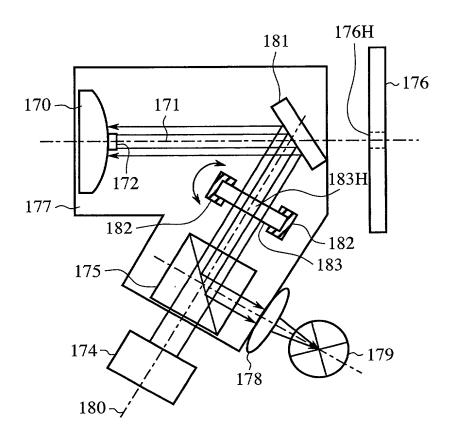


FIG.86B

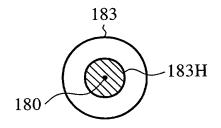


FIG.87

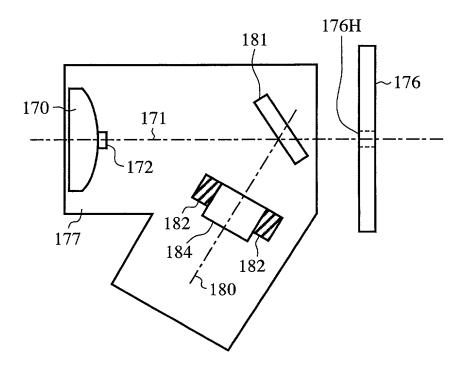


FIG.88

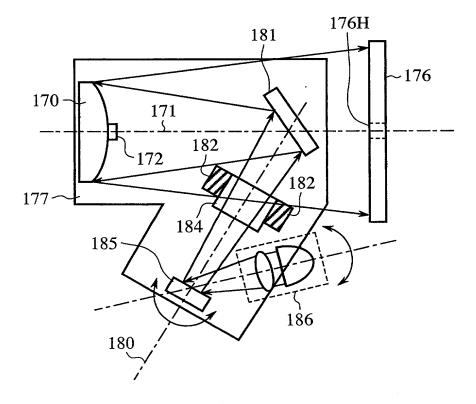
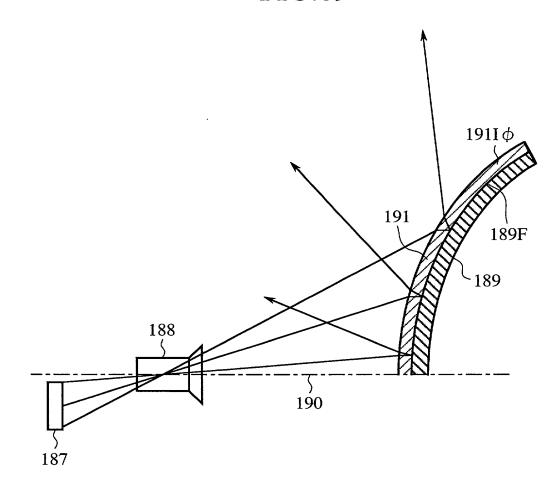
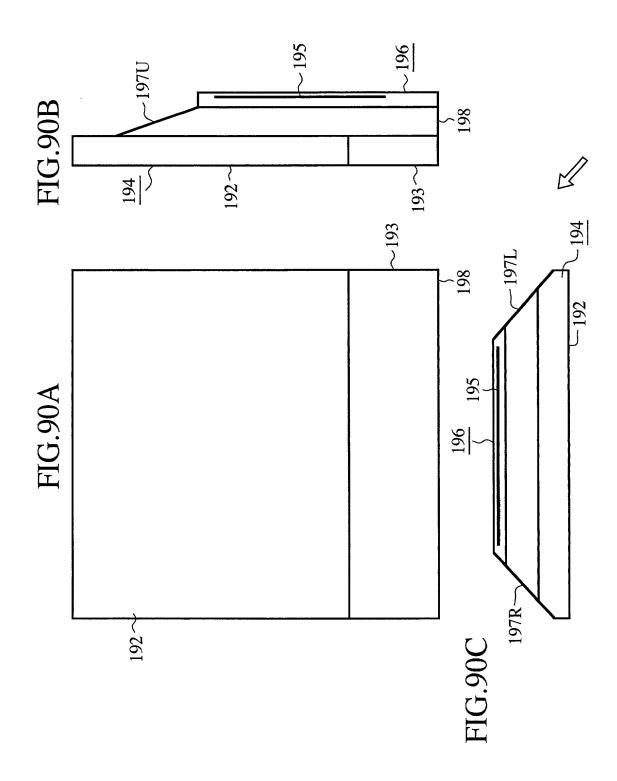
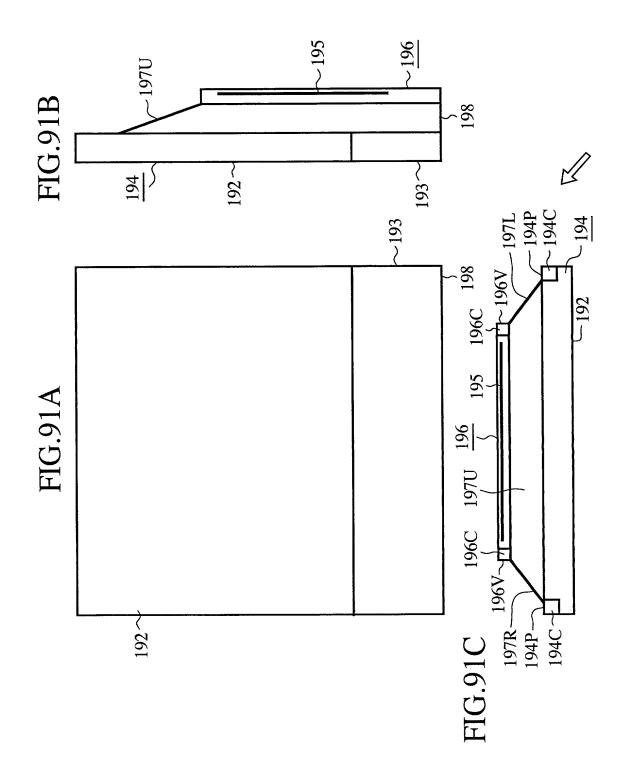
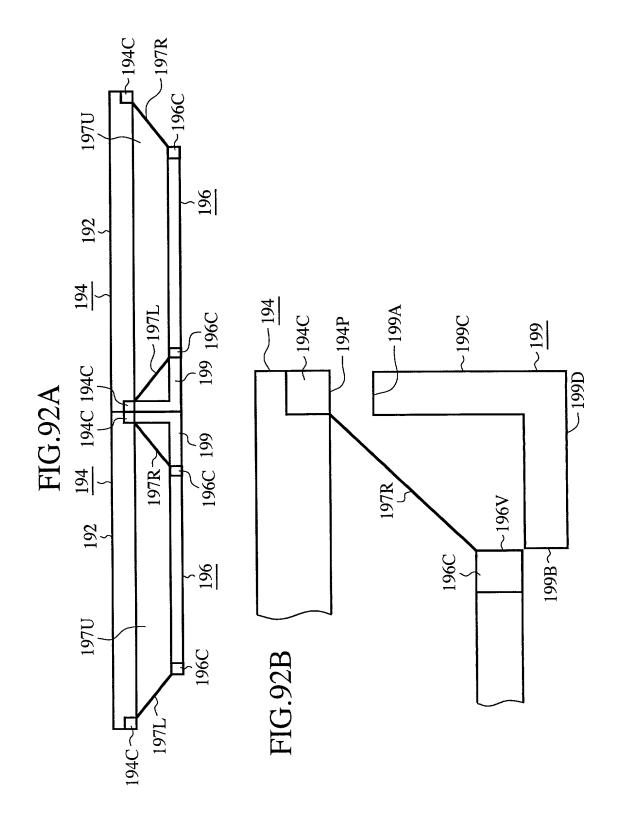


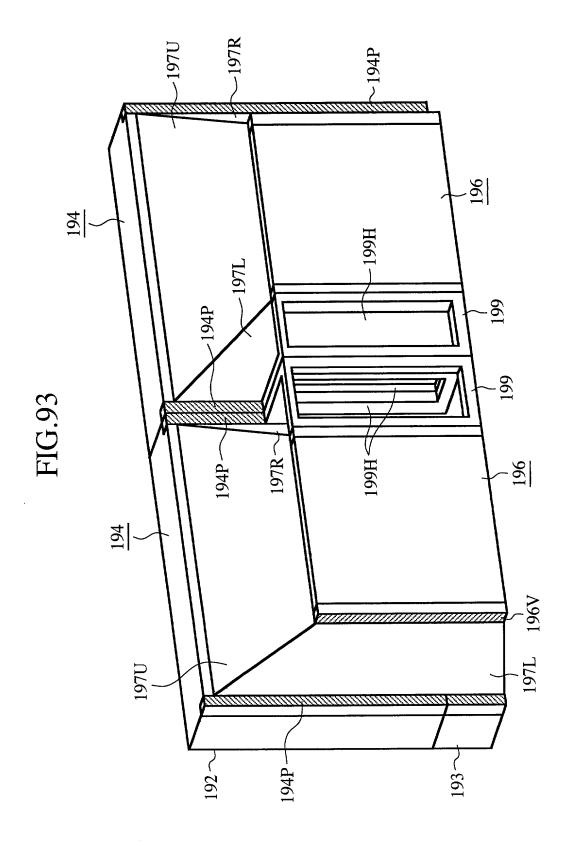
FIG.89











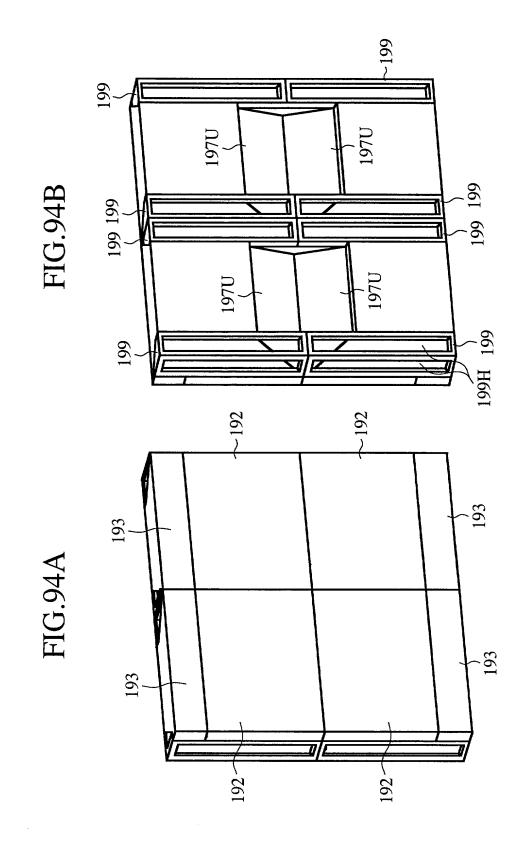


FIG.95

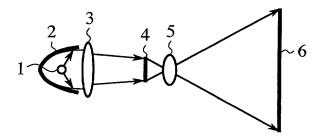


FIG.96

